

REMARKS

Claims 1, 2, 7-9 and 14-17 have been rejected under 35 USC 103(a) as unpatentable over Hada (U.S. Patent No. 6,388,768) in view of Kindo (U.S. Patent No. 5,448,502) further in view of Kuwata (U.S. Patent No. 6,151,410). The rejection is respectfully traversed.

The present invention discloses a system and method of correcting the image quality of color images captured, for example, using a digital camera or scanner. Image processing occurs as follows. When image correction is requested, image data is subjected to a judgment of the necessity/non-necessity of correction items in accordance with the following judgment processing. For items determined as requiring correction, the color image is judged, in the following order, to determine whether the image is a sunset scene, color-covered, normal in contrast and normal in sharpness. Using this process, predetermined image correction is carried out with respect to one or more of the items regarding the image quality of color images, rather than performing correction compared to a predetermined value. That is, the judgment is made based on each item on the basis of the whole condition of each image.

Specifically, judgment is first made as to whether image correction is required. The judgment is based on at least sunset judgment, color covering judgment, contrast judgment and sharpness judgment. An image correction unit performs the image correction for items corresponding to a color image judged as "correction necessary" on the basis of the judgment results. For example, if an image, which is not a sunset scene, is judged to include too much red, the red component on the whole of the color image is weakened to correct the color covering. That is, judgment as to whether the color image is a sunset scene ("sunset judgment") is performed on the basis of the histogram distribution of image data of part of color components in the range of red to yellow. Then, judgment as to whether the color image is color-covered is performed on the basis of the histogram distribution of image data of the whole of color components in the range of red to blue. This is followed by judgment of contrast and sharpness which uses the results of the histogram image data created during sunset and color-covering judgment.

Kuwata discloses an automated image-processing apparatus and method to correct the balance of color in an image. A sample-count distribution of image data is found for each color component by applying a thinning technique on samples. Then, a judgment is made to determine whether analogy exists among the sample-count distributions of the color components. A low degree of analogy suggests that characteristics recognized from the sample-count distributions shall naturally be made uniform among the color components. Correction is made by correcting an offset, with an emphasis on the contrast and brightness to produce a well pitched and good image from the image data with poor color reproducibility.

Specifically, in Kuwata, a distribution of gradation-color-specification data is found for each color component, and characteristics of color components are identified from the separated distributions of the gradation-color-specification data. Judgment as to whether pieces of gradation-color-specification data of color components resemble each other are formed by finding maximum and minimum values of the data, and evaluating differences in maximum and minimum among the pieces of gradation-color-specification data. An attempt is then made to make the identified characteristics uniform. That is, a well pitched image having no color slippages can be obtained without regard to the substance of the image (see, for example, col. 3, lines 5-28). Hence, only picture elements approximated by the gradation-color-specification data are picked up to be used in formation of judgment on characteristics (see, for example, col. 4, lines 7-30).

Kindo discloses an image judging device provided with a sampling unit for obtaining image data suitable for judging the quality of an image by sampling image signals obtained by color separation. Specifically, Kido discloses a white-balance tuning used with a video camera or a digital camera, and adjusts the white balance suitable for photography by presuming a luminous source by the GWA scheme.

Hada discloses an image forming apparatus for forming an image with few defects even when making a copy from a copied image. Hada performs a tone-wedge correction and MTF correction with the clock which have become independent, respectively. In Hada, however, both are rectified for the inputted picture image. Hence, the contrast distinction part 201 omits ON-OFF distinction of a correction, and has determined the amount of corrections of MTF correction. That

is, Hada determines whether there is a need for correction for each correction item (or nothing is required), and only the item with the correction required is rectified.

None of the applied references, either alone or in combination, disclose judging the necessity/nonnecessity of a correction of image data of a color image with respect to two or more items of the quality of the image, as required by the claimed invention. Nor do the references disclose performing a predetermined correction processing on at least a portion of the color image based on the judgment of the quality of the image data, as required by the claimed invention.

Since the recited structure and method are not disclosed by the applied prior art (either alone or in combination), claims 1, 2, 7-9 and 14-17 are patentable.

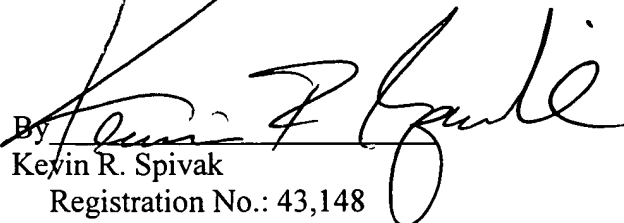
New claims 18-21 have been added, without adding any new matter.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, Applicant(s) petition(s) for any required relief including extensions of time and authorizes the Assistant Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. 325772009600.

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Respectfully submitted,

By 
Kevin R. Spivak

Registration No.: 43,148
MORRISON & FOERSTER LLP
1650 Tysons Blvd, Suite 300
McLean, Virginia 22102
Phone (703) 760-7762
Facsimile (703) 760-7777
Attorneys for Applicant